Amendments to the Claims:

Please cancel claims 1-67 without disclaimer or prejudice to applicants' right to pursue the subject matters of these claims in the future.

Pursuant to 37 C.F.R. §1.121(c), this listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-67. (Cancelled)

68. (New) An enriched population of mesenchymal precursor cells (MPCs) wherein the MPCs are enriched from a perivascular niche within a vascularised tissue source, are positive for an early perivascular cell marker, and can give rise to progeny consisting of two or more tissue types.

69. (New) The enriched population of claim 68 wherein the MPCs are enriched from a perivascular niche within a non-haemopoietic vascularised tissue.

70. (New) The enriched population of claim 68 wherein the MPCs are enriched from a tissue of the group consisting of skin, liver, kidney, heart, adipose tissue, teeth, dental pulp, retina, brain, hair follicles, intestine, lung, spleen, lymph node, thymus, pancreas, bone, ligament, bone marrow, tendon and skeletal muscle.

71. (New) The enriched population of claim 68 wherein the MPCs are positive for one or more of the perivascular

cell markers 3G5, MUC18/CD146, and alpha-smooth muscle actin.

72. (New) The enriched population of claim 68 wherein the enriched population comprises at least 0.1% STRO-1^{bri} MPCs.

73. (New) The enriched population of claim 68 wherein the enriched population comprises at least 1% STRO-1^{bri} MPCs.

74. (New) The enriched population of claim 68 wherein the MPCs are positive for the markers STRO-1^{bri}, MUC18/CD146, and alpha-smooth muscle actin.

75. (New) The enriched population of claim 68 wherein at least 15% of the total cells of the population are positive for the marker 3G5.

76. (New) The enriched population of claim 68 wherein at least 30% of the total cells of the population are positive for the marker 3G5.

77. (New) The enriched population of claim 68 wherein the MPCs are positive for one or more markers selected form the group consisting of THY-1, VCAM-1, ICAM-1, PECAM-1, CD49a/CD49b/CD29, CD49c/CD29, CD49d/CD29, CD29, CD61, integrin beta 5, 6-19, thrombomodulin, CD10, CD13, SCF, STRO-1^{bri}, PDGF-R, EGF-R, IGF1-R, NGF-R, FGF-R and Leptin-R (STRO-2).

78. (New) The enriched population of claim 68 wherein the MPCs are negative for the haemopoietic markers CD45, CD34, and glycophorin A.

79. (New) The enriched population of claim 68 wherein the MPCs have the capacity to be induced to differentiate to form progeny cells comprising one or more of at least osteoblast, odontoblast, dentin-producing, chondrocyte, tendon, ligament, cartilage, adipocyte, fibroblast, marrow stroma, osteoclast- and hematopoietic-supportive stroma, cardiac muscle, smooth muscle, skeletal muscle, pericyte, vascular, epithelial, glial, neuronal, astrocyte or oligodendrocyte cell type.

80. (New) An enriched population of claim 68 comprising at least 0.1% MPCs capable of forming a clonogenic colony.

81. (New) An enriched population of claim 68 comprising at least 1% MPCs capable of forming a clonogenic colony.

82. (New) A differentiated progeny cell obtained from the enriched population of claim 68 wherein the progeny cell is an osteoblast, odontoblast, dentin-producing, chondrocyte, tendon, ligament, cartilage, adipocyte, fibroblast, marrow stroma, osteoclast- and hematopoietic-supportive stroma, cardiac muscle, smooth muscle, skeletal muscle, pericyte, vascular, epithelial, glial, neuronal, astrocyte or oligodendrocyte cell.

83. (New) A population of cells that represents the progeny of the enriched population of claim 68 after the enriched population has been cultured and/or expanded.

84. (New) The cultured and/or expanded population of claim 83 wherein the cultured and/or expanded population comprises at least 5% of cells which express the marker

STRO-1^{bri}.

85. (New) The cultured and/or expanded population of claim 83 wherein the cultured and/or expanded population comprises at least 10% of cells which express the marker STRO-1^{bri}.

86. (New) The cultured and/or expanded population of claim 83 wherein the cultured and/or expanded population comprises at least 30% of cells which express the marker STRO-1^{bri}.

87. (New) The cultured and/or expanded population of claim 84 wherein the cells which express the marker STRO-1^{bri} are proliferating cells.

88. (New) The cultured and/or expanded population of claim 84 wherein the cells which express of the marker STRO-1^{bri} do not express markers associated with differentiated progeny.

89. (New) The cultured and/or expanded population of claim 83 wherein the cultured and/or expanded population comprises at least 5% of cells which express the marker STRO-1^{dull}.

90. (New) The cultured and/or expanded population of claim 83 wherein the cultured and/or expanded population comprises at least 10% of cells which express the marker STRO-1^{dull}.

91. (New) The cultured and/or expanded population of claim 83 wherein the cultured and/or expanded population comprises at least 30% of cells which express the marker

STRO-1^{dull}.

92. (New) The cultured and/or expanded population of claim 89 wherein cells which express the marker STRO-1^{dull} are positive for a marker associated with a differentiated cell selected from the group consisting of an osteoblast, odontoblast, dentin-producing cell, chondrocyte, tendon cell , ligament cell, cartilage cell , adipocyte cell, fibroblast cell, marrow stroma cell, osteoclast- and hematopoietic-supportive stroma cell, cardiac muscle cell, smooth muscle cell, skeletal muscle cell, pericyte, vascular cell, epithelial cell, glial cell, neuronal cell, astrocyte or oligodendrocyte cell.

93. (New) The cultured and/or expanded population of claim 89 wherein cells which express the marker STRO-1^{dull} are positive for a marker selected from the group consisting of collagen II, collagen IV, laminin, bone sialoprotein (BSP), osteocalcin (OCN), nestin, glial fibrillary acidic protein (GFAP), CBFA1, osterix (OSX), osteocalcin (OCN), Sox9, collagen X (COL X), leptin, GATA-4, transferrin (TFN) and flavin containing monooxygenase (FCM).

94. (New) The cultured and/or expanded population of claim 83 wherein the MPCs are cultured and/or expanded by culturing in media supplemented with growth factors.

95. (New) The cultured and/or expanded population of claim 94 wherein the growth factors are chosen from the group comprising, but not limited to, PDGF, EGF, FGF, IGF, VEGF and LIF.

96. (New) A method of enriching for mesenchymal precursor

cells (MPCs), the method including the step of preparing a single cell suspension from a vascularised source tissue and the step of enriching based on the presence of markers expressed in the vascularized tissue by peri-vascular cells.

97. (New) The method of claim 96 wherein the vascularised source tissue is in the group consisting of skin, liver, kidney, heart, adipose tissue, teeth, dental pulp, retina, brain, hair follicles, intestine, lung, spleen, lymph node, thymus, pancreas, bone, ligament, bone marrow, tendon and skeletal muscle.

98. (New) The method of claim 96 wherein the vascularised tissue source is a perivascular niche within a non-haemopoietic vascularised tissue.

99. (New) The method of claim 96 wherein the step of enriching is based on the presence of the marker 3G5, MUC18/CD146 or STRO-1^{bri}.

100. (New) The method of claim 96 wherein the step of enriching is based on the presence of one or more markers expressed by peri-vascular cells selected from the group comprising, but not limited to, THY-1, VCAM-1, ICAM-1, PECAM-1, CD49a/CD49b/CD29, CD49c/CD29, CD49d/CD29, CD29, CD61, integrin beta 5, 6-19, thrombomodulin, CD10, CD13, SCF, STRO-1^{bri}, PDGF-R, EGF-R, IGF1-R, NGF-R, FGF-R, Leptin-R (STRO-2).

101. (New) The method of claim 96 wherein the step of enriching is based on the additional absence of a surface marker indicative of commitment or hematopoietic lineage

differentiation.

102. (New) The method of claim 101 wherein the cells do not express the hematopoietic markers CD34, CD45 or glycophorin A.

103. (New) The method of claim 96 wherein the vascularized tissue source for the enrichment of MPC is selected from the group comprising, but not limited to, adipose tissue, teeth, dental pulp, skin, liver, kidney, heart, retina, brain, hair follicles, intestine, lung, spleen, lymph node, thymus, pancreas, bone, ligament, bone marrow, tendon, and skeletal muscle.

104. (New) The method of claim 96 wherein the vascularized source tissue for the enrichment of MPC is mammalian.

105. (New) The method of claim 104 wherein the vascularized source tissue for the enrichment of MPC is human.

106. (New) The method of claim 96 wherein the method further includes the step of culturing and/or expanding the population after enrichment.